

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1 – 32 (Canceled)

Claim 33 (New) A multipane window unit comprising:

a window sash that provides a structural frame having an inside perimeter;

a glazing pane spacing and mounting structure comprising at least two spaced, parallel glazing legs mounted on and extending from a main structural portion of the window sash, the spaced legs terminating in ends that define a viewing perimeter smaller than the inside perimeter to provide a viewing opening for the window unit, the ends being independent of one another and unconnected along substantially the entire viewing perimeter of the structural frame to preclude the transfer of stresses therebetween;

a first glazing pane having edges defining a perimeter, the glazing pane edges of the first glazing pane being unconstrained along substantially the entire first glazing pane perimeter by providing at least that the perimeter of the first glazing panel is greater than the viewing perimeter and less than the inside perimeter of the structural frame whereby the entire first glazing pane fits within the inside perimeter of the structural frame, the first glazing pane being adhesively mounted to one of the glazing legs;

a second glazing pane having edges defining a perimeter, the glazing pane edges of the second glazing pane being unconstrained along substantially the entire second glazing pane perimeter by providing at least that the perimeter of the second glazing panel is greater than the viewing perimeter and less than the inside perimeter of the structural frame whereby the entire second glazing pane fits within the inside perimeter of the structural

frame, the second glazing pane being adhesively mounted to the other one of the glazing, and

the spacing and mounting structure maintaining planar window surfaces of the first and second glazing panes substantially parallel to each other with a fixed space therebetween, such that the glazing panes are isolated from one another and function independently with respect to stresses.

Claim 34 (New) The window according to claim 33 further comprising a desiccant between the first and second upright members.

Claim 35 (New) The window according to claim 34 wherein the desiccant is in a vapor pervious adhesive.

Claim 36 (New) The window according to claim 35 wherein the glazing pane spacing and mounting structure comprises a spacer frame that is detachable mounted on the inside perimeter of the structural frame.

Claim 37 (New) A multipane window unit comprising:

a window sash that provides a structural frame having an inside perimeter and an inside open area;

a glazing pane spacing and mounting structure comprising:

a first elongated segment comprising a first end and an opposite second end, a first upright member extending from the open area toward the inside perimeter and having a first major surface and an opposite second major surface with the first surface of the first member of the first segment lying in a first plane, and a second upright member extending from the open area toward the inside perimeter and having a first major surface and a second opposite major surface with the first major surface of the second member of the first segment lying in a second plane, and the second major surface of the second member of

the first segment spaced from and facing the second major surface of the first member of the first segment;

a second elongated segment comprising a first end and an opposite second end, a first upright member extending from the open area toward the inside perimeter and having a first major surface and an opposite second major surface with the first surface of the second member of the second segment lying in the first plane, and a second upright member extending from the open area toward the inside perimeter and having a first major surface and an opposite second major surface with the first major surface of the second upright member of the second segment lying in the second plane, and the second major surface of the second upright member of the second segment spaced from and facing the second major surface of the first upright member of the second segment wherein the first end of the second segment is in a fixed relationship to the second end of the first segment;

a third elongated segment comprising a first end and an opposite second end, a first upright member extending from the open area toward the inside perimeter having a first major surface and an opposite second major surface with the first surface of the first upright member of the third segment lying in the first plane and a second upright member extending from the open area toward the inside perimeter and having a first major surface and an opposite second major surface with the first major surface of the second member of the third segment lying in the second plane, and the second major surface of the second upright member of the third segment spaced from and facing the second major surface of the first upright member of the third segment wherein the first end of the third segment is in a fixed relationship to the second end of the second segment, and

a fourth elongated segment comprising a first end and an opposite second end, a first upright member extending from the open area toward the inside perimeter and having a first major surface and

an opposite second major surface with the first surface of the first upright member of the fourth segment lying in the first plane, and a second upright member extending from the open area toward the inside perimeter and having a first major surface and a second opposite major surface with the first major surface of the second member of the fourth segment lying in the second plane and the second major surface of the second upright member of the fourth segment spaced from and facing the second major surface of the first upright member of the fourth segment wherein the first end of the fourth segment is in a fixed relationship to the second end of the third segment and the second end of the fourth segment in a fixed relationship to the first end of the first segment, wherein the ends of the upright members facing the open area define a viewing perimeter smaller than the inside perimeter to provide a viewing opening for the window unit, the ends of the first upright members of the segments are independent of the ends of the second upright members of the segments to preclude the transfer of stresses between the first upright members, and the second upright members, of the segments;

a first glazing sheet and a second glazing sheet, each of the sheets having a first major surface and an opposite second major surface, and a peripheral edge between the first and second surface defining a perimeter that is greater than the perimeter defined by the viewing opening and less than the inside perimeter such that the entire first glazing sheet fits within the inside perimeter of the sash in facing relationship to the first plane and the entire second glazing sheet fits within the inside perimeter of the sash in facing relationship to the second plane with the first and second glazing sheets spaced from one another by the first and second upright members of the segments to provide a compartment between the sheets and

a first sealant layer mounting the marginal edge portions of inside major surface of the first sheet to the first major surface of the first upright members of the segments, and a second sealant layer mounting the marginal

edges of inside major surface of the second sheet to the first major surface of the second upright member of the segments.

Claim 38 (New) The window according to claim 37 wherein the first end of the second segment is securely mounted to the second end of the first segment, the first end of the third segment is securely mounted to the second end of the second segment, the first end of the fourth segment is securely mounted to the second end of the third segment, and the second end of the fourth segment is securely mounted to the first end of the first segment.

Claim 39 (New) The window according to claim 38 wherein each of the segments includes the first and second upright members connected to a base to provide the segments with a U-shaped cross segment and the base is continuous between at least two adjacent segments.

Claim 40 (New) The window according to claim 39 wherein the first, second, third and fourth segments form a spacer frame having the base connected to the first and second upright member of the segments, the spacer frame has a first end joined to an opposite second end, the base is continuous from the first end to the second end of the of the spacer frame.

Claim 41 (New) The window according to claim 39 wherein the second end of the first segment and the first end of the second segment define a first corner; the second end of the second segment and the first end of the third segment define a second corner; the second end of the third segment and the first end of the fourth segment define a third corner, and the first end of the first segment and the second end of the fourth segment define a fourth corner, and portions of the first upright members of the segments and portions of the second upright members of the segments is continuous at, at least three corners of the four corners.

Claim 42 (New) The window according to claim 41 wherein the segments are selected from the group of segments made from metal, segments made from a moisture and gas impervious plastic, segments having a moisture impervious core covered with a moisture and gas impervious film and combinations thereof.

Claim 43 (New) The window according to claim 42 further comprising a desiccant in a vapor pervious adhesive between the first and second upright members of selected ones of the segments.

Claim 44 (New) The window according to claim 37 further comprising a securing member engaging at least marginal edge portions of outside major surface of one of the first and second sheets.

Claim 45 (New) The window according to claim 44 wherein the securing member is selected from the group of a rabbit formed on the frame or caulking.

Claim 46 (New) The window according to claim 44 wherein the first, second, third and fourth segments provide a spacer frame, and the spacer frame and the glass sheets comprise an insulating unit mounted within the frame and wherein the securing member is selected from the group of a rabbit formed on the frame or caulking to secure the insulating unit in the frame.

Claim 47 (New) The window according to claim 37 wherein the first, second, third and fourth segments are made of plastic and a major surface defined as a base surface lies between the second major surfaces of the first and second upright members of the segments and at least one of the major surfaces of the first and second upright members of the segments and of the base surface are vapor impervious.

Claim 48 (New) The window according to claim 47 wherein the plastic is a vapor impervious plastic.

Claim 49 (New) The window according to claim 37 further comprising a desiccant in a moisture impervious adhesive between the first and second upright members of selected ones of the segments.

Claim 50 (New) A multipane window unit comprising:

 a window sash that provides a structural frame having an inside perimeter and an inside open area;

 a glazing pane spacing and mounting structure comprising:

 a first elongated segment comprising a first end and an opposite second end, a first upright member extending from the inside perimeter toward the open area and having a first major surface and an opposite second major surface with an end portion facing the open area defined as a first end portion connecting the first and second major surfaces of the first upright member of the first segment and with the first surface of the first member of the first segment lying in a first plane, and a second upright member extending from the inside perimeter toward the open area and having a first major surface and a second opposite major surface with an end portion facing the open area defined as a second end portion connecting the first and second major surfaces of the second upright member of the first segment and with the first major surface of the second member of the first segment lying in a second plane spaced from the first plane, and the second major surface of the second member of the first segment spaced from and facing the second major surface of the first member of the first segment;

 a second elongated segment comprising a first end and an opposite second end, a first upright member extending from the inside perimeter toward the open area and having a first major surface and an opposite second major surface with an end portion facing the open

area defined as a third end portion connecting the first and second major surfaces of the first upright member of the second segment and with the first surface of the second member of the second segment lying in the first plane, and a second upright member extending from the inside perimeter toward the open area and having a first major surface and an opposite second major surface with an end portion facing the open area defined as a fourth end portion connecting the first and second major surfaces of the second upright member of the second segment with the first major surface of the second upright member of the second segment lying in the second plane, and the second major surface of the second upright member of the second segment spaced from and facing the second major surface of the first upright member of the second segment wherein the first end of the second segment is in a fixed relationship to the second end of the first segment;

a third elongated segment comprising a first end and an opposite second end, a first upright member extending from the inside perimeter toward the open area having a first major surface and an opposite second major surface with an end portion facing the open area defined as the fifth end portion connecting the first and second major surfaces of the first upright member of the third segment and with the first surface of the first upright member of the third segment lying in the first plane and a second upright member extending from the inside perimeter toward the open area and having a first major surface and an opposite second major surface with an end portion facing the open area defined as the sixth end portion connecting the first and second major surfaces of the second upright member of the third segment and with the first major surface of the second member of the third segment lying in the second plane, and the second major surface of the second upright member of the third segment spaced from and facing the second major surface of the first upright member of the third

segment wherein the first end of the third segment is in a fixed relationship to the second end of the second segment, and

a fourth elongated segment comprising a first end and an opposite second end, a first upright member extending from the inside perimeter toward the open area and having a first major surface and an opposite second major surface with an end portion facing the open area defined as the seventh end portion connecting the first and second major surfaces of the first upright member of the fourth segment and with the first surface of the first upright member of the fourth segment lying in the first plane, and a second upright member extending from the inside perimeter toward the open area and having a first major surface and a second opposite major surface with an end portion facing the open area defined as the eighth end portion connecting the first and second major surfaces of the second upright member of the fourth segment with the first major surface of the second member of the fourth segment lying in the second plane, and the second major surface of the second upright member of the fourth segment spaced from and facing the second major surface of the first upright member of the fourth segment wherein the first end of the fourth segment is in a fixed relationship to the second end of the third segment and the second end of the fourth segment in a fixed relationship to the first end of the first segment and the first thru and including the eighth end portions define a viewing perimeter smaller than the inside perimeter to provide a viewing opening for the window unit, the end portions of the first upright member of the segments are independent of the end portions of the second upright member of the segments and the end portions of the first upright members of the segments are unconnected to the end portions of the second upright members of the segments substantially along the entire viewing perimeter to preclude the transfer of stresses between the end portions

of the first upright members, and the end portions of second upright members, of the segments;

a first glazing sheet and a second glazing sheet, each of the sheets having a first major surface and an opposite second major surface, and a peripheral edge between the first and second surface defining a perimeter that is greater than the perimeter defined by the viewing area and less than the inside perimeter such that the entire first glazing sheet fits within the inside perimeter of the sash in facing relationship to the first plane and the entire second glazing sheet fits within the inside perimeter of the sash in facing relationship to the second plane with the first and second glazing sheets spaced from one another and out of contact with one another by the first and second upright members of the segments to provide a compartment between the sheets, and

a first sealant layer mounting the marginal edge portions of inside major surface of the first sheet to the first major surface of the first upright members of the segments, and a second sealant layer mounting the marginal edges of inside major surface of the second sheet to the first major surface of the second upright member of the segments, and the peripheral edges of the first and second sheets out of direct contact with at least a portion of the structural frame between the first and second planes.

Claim 51 (New) The window according to claim 50 wherein the first end of the second segment is securely mounted to the second end of the first segment, the first end of the third segment is securely mounted to the second end of the second segment, the first end of the fourth segment is securely mounted to the second end of the third segment, and the second end of the fourth segment is securely mounted to the first end of the first segment.

Claim 52 (New) The window according to claim 51 wherein each of the segments includes the first and second upright members connected to a base

to provide the segments with a U-shaped cross segment and the base is continuous between at least two adjacent segments.

Claim 53 (New) The window according to claim 52 wherein the segments, the glass sheets and the sealant layers provide a multiple glazed window unit wherein the multiple glazing window unit is mounted in the structural frame.

Claim 54 (New) The window according to claim 53 wherein the first, second, third and fourth segments form a spacer frame having the base connected to the first and second upright member of the segments, the spacer frame has a first end joined to an opposite second end, the base is continuous from the first end to the second end of the of the spacer frame.

Claim 55 (New) The window according to claim 54 wherein the second end of the first segment and the first end of the second segment define a first corner; the second end of the second segment and the first end of the third segment define a second corner; the second end of the third segment and the first end of the fourth segment define a third corner, and the first end of the first segment and the second end of the fourth segment define a fourth corner, and portions of the first upright members of the segments and portions of the second upright members of the segments is continuous at, at least three corners of the four corners.

Claim 56 (New) The window according to claim 54 wherein the segments are made of a material selected from metal, plastic and combinations thereof.

Claim 57 (New) The window according to claim 54 wherein the segments are selected from the group of segments made from metal, segments made from a moisture and gas impervious plastic, segments having a moisture impervious core covered with a moisture and gas impervious film and combinations thereof.

Claim 58 (New) The window according to claim 54 further comprising a desiccant between the first and second upright members of selected ones of the segments.

Claim 59 (New) The window according to claim 58 wherein the desiccant is in a vapor pervious adhesive.

Claim 60 (New) The window according to claim 50 further comprising a securing member engaging at least marginal edge portions of outside major surface of one of the first and second sheets.

Claim 61 (New) The window according to claim 60 wherein the securing member is selected from the group of a rabbit formed on the frame or caulking.

Claim 62 (New) The window according to claim 60 wherein the first, second, third and fourth segments provide a spacer frame, and the spacer frame and the glass sheets comprise an insulating unit mounted within the frame and wherein the securing member is selected from the group of a rabbit formed on the frame or caulking to secure the insulating unit in the frame.

Claim 63 (New) The window according to claim 50 wherein the first, second, third and fourth segments are made of plastic and a major surface defined as a base surface lies between the second major surfaces of the first and second upright members of the segments and at least one of the major surfaces of the first and second upright members of the segments and of the base surface are vapor impervious.

Claim 64 (New) The window according to claim 63 wherein the plastic is a vapor impervious plastic.

Claim 65 (New) The window according to claim 50 further comprising a desiccant between the first and second upright members of selected ones of the segments.

Claim 66 (New) The window according to claim 65 wherein the desiccant is in a vapor pervious adhesive.

Claim 67 (New) The window according to claim 50 wherein the first and second planes are parallel to one another.

Claim 68 (New) The window according to claim 67 wherein the first and second end portions lie in a third plane, the third and fourth end portions lie in a fourth plane, the fifth and sixth end portions lie in a fifth plane and the seventh and eighth end portions lie in a sixth plane wherein the third, fourth, fifth and sixth planes are normal to the first plane and the third and fifth planes are parallel to one another and normal to the fourth and sixth planes.